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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,141	12/05/2001	Alexander Beeck	033275-316	3862

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/002,141

Applicant(s)

BEECK ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Applicants' Amendment dated December 3, 2003 has been carefully considered but is deemed non-persuasive. Claims 1-7 are pending. The proposed drawing changes dated December 3, 2003 have been approved by the examiner. The Replacement Sheet of Drawings dated December 3, 2003 has been approved by the examiner. Applicants have adopted all of the examiner's suggested claim language, except for the suggested change to claim 6, line 6, where it was suggested that "an" be changed to -- the --. It appears that this may be an oversight, because Applicants stated that the claims were amended to clarify the claims. Correction of the above matters is noted with appreciation.

With regard to the rejection of claims 1-2, 3/1, 4/3/1, 5/3/1, 3/2, 4/3/2, 5/3/2, 6, and 7 under 35 U.S.C. 102(b) as being anticipated by German Patent 198 01 804, Applicants have argued that the inspection apertures 22, 30, and 64 are arranged in positions which do not allow the dust particles to be extracted due to their inertia when flowing with the cooling medium, and that the inspection apertures of the German Patent '804 are not recognized as dust discharge apertures and would not fulfill the function of such apertures, in contrast to the apertures disclosed in the instant application. These arguments are respectfully not persuasive. The German Patent '804 discloses inspection apertures 22 (figure 2) and 64 (figures 3-4) through which an inspection of the interior of the component is made possible, via a borescope, as well as via a cleaning tool 35. As seen in figure 2, inspection aperture 22 is arranged in the neighborhood of a tip of the blade near 35 (figure 2). The inspection apertures are clearly shown in figures 1 and 2 as having diameters that are much larger than the blade cooling apertures 18, and the diameters appear to be at least three times larger than the diameters of the blade cooling

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apertures. Cooling medium 17 is supplied to the blade 1/12 interior, for discharge through the cooling apertures 18. The cooling apertures 18 must exhaust against the high pressure of the working fluid flow 16, shown in figure 1, in order to accomplish blade cooling, requiring that the cooling medium 17 is supplied with sufficient pressure to overcome the high-pressure working fluid 16. Because the inspection apertures 22 (figure 2) and 64 (figures 3-4) and the unnumbered inspection aperture arranged in the neighborhood of a tip of the blade near 35 (figure 2) are of such a large diameter compared to the diameters of the blade cooling apertures 18, it is inherent that dust or dirt contained in the cooling medium will flow through the inspection apertures, because dust or dirt particles are smaller than the diameter of the inspection apertures and will become entrained in the cooling medium exhaust. Furthermore, it is impossible for the dust or dirt to flow to not flow through the inspection apertures, because a high-pressure fluid such as the blade cooling medium 17 will escape to areas of relatively lower pressure such as the blade exterior, through any pathways, such as the inspection apertures.

With regard to the rejection of claims 1-2 and 6-7 under 35 U.S.C. 102(b) as being anticipated by Cederwall 4,668,162, Applicants have argued that the interior part of the component 50 does not allow for inspection, and that the aperture remaining after removing the elongate member 76 does not reach an inner part of the component 50, but only to the outer wall. Applicants have further argued that from the figures of Cederwall, it is not clear how inspection of the component 50 can be achieved, and that the only possibility is that the outer wall of the component is inspected. Applicants have argued that Cederwall therefor fails to disclose at least one inspection aperture through which an inspection of the interior of the component is made

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possible. These arguments are respectfully non-persuasive. Column 5, lines 38-41 of Cederwall state that the elongate member 76 is a borescope plug assembly. Figure 2 of Cederwall clearly shows that the aperture in the radially outermost band of component 50 is aligned in a radial manner with at least some of the plural cooling channels 86. As used in the gas turbine art, the term "borescope" refers to an inspection tool for visually inspecting gas turbine components. As seen in figure 2, removal of elongate member 76 would clearly allow for inspection of at least some of the cooling channels 86. By removal of the elongate member 76, both (1) the "interior" of the radially outermost band of component 50 may be inspected, due to the presence of the now open inspection aperture therein, and (2) the "interior" of component 50, i.e. the interior as encompassed by the interior areas inside at least some of the plural cooling channels 86, may be inspected. With regard to Applicants' argument that Cederwall does not disclose or suggest inspection apertures arranged such that at the same time they discharge dust or dirt particles contained in the cooling medium, this argument is not persuasive. Because the unnumbered inspection aperture in the radially outermost band of component 50 is much larger in diameter compared to the diameters of the blade cooling passages 86, it is inherent that dust or dirt contained in the cooling medium will flow through the inspection aperture, because dust or dirt particles are smaller than the diameter of the inspection aperture and will become entrained in the cooling medium exhaust. Furthermore, it is impossible for the dust or dirt to flow to not flow through the inspection aperture, because a high-pressure fluid such as the blade cooling medium for cooling passages 86 will escape to areas of relatively lower pressure such as the blade exterior, through any pathways, such as the inspection aperture.

Examiner's Suggestions to Claim Language

The following are suggestions to improve the clarity and precision of the claims:

In claim 6, line 6, "an" may be changed to -- the --.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 3/1, 4/3/1, 5/3/1, 3/2, 4/3/2, 5/3/2, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by German Patent 198 01 804 (figures 2-4). Note the component 1/12 of an unnumbered fluid flow machine, comprising plural cooling channels 5 (figure 2) and unnumbered/adjacent 62 (figure 3) for the passage of cooling medium, inspection apertures 22 (figure 2) and 64 (figures 3-4) through which an inspection of the interior of the component is made possible, with the inspection apertures being arranged and dimensioned such that they form a dust discharge aperture for dust or dirt particles contained in the cooling medium (because dust or dirt particles are smaller than the diameter of the inspection apertures), with the inspection apertures being dimensioned to enable introduction of a borescope. The component is a rotating blade for a turbine, and the inspection aperture 22 is arranged in the neighborhood of a tip of the blade near 35 (figure 2). The inspection aperture 22/64 has its longitudinal axis essentially parallel to the axis of the flow machine (figures 2-4). The inspection aperture 22 is

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arranged at the blade tip near 35 and has its longitudinal axis essentially perpendicular to the axis of the flow machine (figure 2). The German Patent also discloses a process for inspection and cleaning of the interior of the component, with the process comprising introducing an inspection tool in the form of a borescope through the inspection or dust discharge apertures 22/64, and performing both inspection and a cleaning of the interior of the component with the inspection tool and a cleaning tool 35.

Claims 1-2 and 6-7 are also rejected under 35 U.S.C. 102(b) as being anticipated by Cederwall 4,668,162 (figures 1-2). Note the component 50 of fluid flow machine 10, comprising plural cooling channels 86 for the passage of cooling medium, the unnumbered inspection aperture through which elongate member 76 extends through which an inspection of the interior of the component is made possible, with the inspection aperture being arranged and dimensioned such that it forms a dust discharge aperture for dust or dirt particles contained in the cooling medium (because dust or dirt particles are smaller than the diameter of the inspection aperture), with the inspection aperture being dimensioned to enable introduction of a borescope (column 5, lines 38-41). Cederwall also discloses a process for inspection of the interior of the component, with the process comprising introducing an inspection tool in the form of a borescope through the inspection or dust discharge aperture, and performing inspection of the interior of the component with the inspection tool.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (703)-308-2638. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (703) 308-1044. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9302.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Christopher Verdier
Primary Examiner
Art Unit 3745

C.V.
January 8, 2004